

MATERIAL SAFETY DATA SHEET

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name	CsPbBr ₃ Quantum Dots - Toluene solution (10 mg/ml)
Synonyms	Caesium lead bromide - toluene solution
Chemical Name	Caesium lead tribromide - toluene solution
Chemical Formula	CsPbBr ₃
Product code	M2124
CAS No.	15243-48-8
EC No.	Not applicable
REACH Registration No.	Not applicable

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Laboratory chemicals
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1.3 Details of the supplier of the safety data sheet

Supplier

Company Identification	Ossila Limited
Address of Supplier	Solpro Business Park Windsor Street
Postal code	S4 7WB
Telephone:	01142999180
E-mail	info@ossila.com

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008 (CLP)	<p>Aquatic Acute 3 :Harmful to aquatic life.</p> <p>Aquatic Chronic 3 :Harmful to aquatic life with long lasting effects.</p> <p>Asp. Tox. 1 :May be fatal if swallowed and enters airways.</p> <p>Eye Irrit. 2 :Causes serious eye irritation.</p> <p>Flam. Liq. 2 :Highly flammable liquid and vapour.</p> <p>Repr. 1A :May damage the unborn child. Suspected of damaging fertility.</p> <p>Skin Irrit. 2 :Causes skin irritation.</p> <p>STOT RE 2 :May cause damage to organs through prolonged or repeated exposure.</p> <p>STOT SE 3 :May cause respiratory irritation. May cause drowsiness and dizziness</p>
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2.2 Label elements

Product Name	According to Regulation (EC) No. 1272/2008 (CLP) CsPbBr ₃ Quantum Dots - Toluene solution (10 mg/ml)
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Hazard Pictogram(s)



Signal Word(s)

Danger

Hazard Statement(s)

H225: Highly flammable liquid and vapour.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.

H360Df: May damage the unborn child. Suspected of damaging fertility.
 H373: May cause damage to organs through prolonged or repeated exposure.
 H412: Harmful to aquatic life with long lasting effects.

Precautionary Statement(s) P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P260: Do not breathe dust/fume/gas/mist/vapours/spray.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
 P403+P233: Store in a well-ventilated place. Keep container tightly closed.

2.3 Other hazards

None known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous ingredient(s)	CAS No.	EC No.	%W/W	Hazard Statement(s)
Toluene	108-88-3		≤97	Flam. Liq. 2 H225 Asp. Tox. 1 H304 Skin Irrit. 2 H315 STOT SE 3 H336 Repr. 2 H361d STOT RE 2 H373
Caesium bromide	7787-69-1	232-130-0	<10	Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT SE 3 H335
Lead dibromide	10031-22-8	233-084-4	<10	Acute Tox. 4 H302 Acute Tox. 4 H332 Repr. 1A H360Df STOT RE 2 H373 Aquatic Acute 1 H400 Aquatic Chronic 1 H410

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
 Skin Contact Rinse skin with water. If skin irritation occurs: Get medical advice/attention.
 Eye Contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
 Ingestion Treat symptomatically.

4.2 Most important symptoms and effects, both acute and delayed

Section 11: Most important symptoms and effects, both acute and delayed.

4.3 Indication of any immediate medical attention and special treatment needed

Specific treatment (see Medical Advice on this label). Call a POISON CENTER/doctor if you feel unwell.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing media As appropriate for surrounding fire.
 Unsuitable extinguishing media None.

5.2 Special hazards arising from the substance or mixture

May decompose in a fire, giving off toxic and irritant vapours.

5.3 Advice for firefighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Avoid breathing mist/vapours/spray.

6.2 Environmental precautions

Avoid release to the environment.

6.3 Methods and material for containment and cleaning up

Contain spillages with sand, earth or any suitable adsorbent material. Sweep up spilled substance. Dispose of contents in accordance with local, state or national legislation. Ensure full personal protection (including respiratory protection) during removal of spillages.

6.4 Reference to other sections

See Also Section 8, 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid breathing mist/vapours/spray. Avoid contact with skin and eyes. Provide adequate ventilation. Keep away from sources of ignition.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Storage temperature

Ambient.

Storage life

Stable under normal conditions.

Incompatible materials

None known.

7.3 Specific end use(s)

Laboratory chemicals.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

SUBSTANCE.	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m ³)	STEL (ppm)	STEL (mg/m ³)	Note
Toluene	108-88-3	50	191	100	384	Sk
Toluene	108-88-3	50	192	100	384	IOELV, Skin

Region	Source
EU	EU Occupational Exposure Limits
United Kingdom	UK Workplace Exposure Limits EH40/2005 (Third edition, published 2018)

Remark	Notes
Sk	Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.
IOELV	Indicative Occupational Exposure Limit Values.
Skin	The possibility of significant uptake through the skin.

8.2 Exposure controls

8.2.1. Appropriate engineering controls Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems. Use with ventilation, local exhaust ventilation or breathing protection. A washing facility/water for eye and skin cleaning purposes should be present.

8.2.2. Personal protection equipment



Eye Protection

Wear eye protection with side protection (EN166).



Skin protection

Wear protective clothing and gloves: Impervious gloves (EN 374).



Respiratory protection A suitable mask with filter type A (EN14387 or EN405) may be appropriate.

8.2.3. Environmental Exposure Avoid release to the environment.
Controls

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Form: Liquid. Colour: Yellow
Odour	Not known.
Odour threshold	Not known.
pH	Not known.
Melting point/freezing point	-95 °C
Initial boiling point and boiling range	110 °C
Flash Point	8 °C
Evaporation rate	Not known.
Flammability (solid, gas)	Not known.
Flammability or explosive limits	Not known.
Vapour pressure	Not known.
Vapour density	Not known.
Density (g/ml)	Not known.
Relative density	Not known.
Solubility(ies)	Solubility (Water) : Not known. Solubility (Other) : Not known.
Partition coefficient: n-octanol/water	Not known.
Auto-ignition temperature	Not known.
Decomposition Temperature (°C)	Not known.
Viscosity	Not known.
Explosive properties	Not known.
Oxidising properties	Not known.

9.2 Other information

None.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

None anticipated.

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions known if used for its intended purpose.

10.4 Conditions to avoid

None anticipated.

10.5 Incompatible materials

Not known.

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity - Ingestion	Not classified. Calculated acute toxicity estimate (ATE) Calc ATE - 50000.00000
Acute toxicity - Skin Contact	Not classified.
Acute toxicity - Inhalation	Not classified. Calculated acute toxicity estimate (ATE) Calc ATE - 1100.00000
Skin corrosion/irritation	Calculation method : Causes skin irritation.
Serious eye damage/irritation	Calculation method : Causes serious eye irritation.
Skin sensitization data	Not classified.

Respiratory sensitization data	Not classified.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Not classified.
Reproductive toxicity	Calculation method : May damage the unborn child. Suspected of damaging fertility.
Lactation	Not classified.
STOT - single exposure	Calculation method : May cause respiratory irritation. May cause drowsiness or dizziness.

11.2 Other information

Not known.

SECTION 12: ECOLOGICAL INFORMATION**12.1 Toxicity**

Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

Toxicity - Aquatic invertebrates	Not known.
Toxicity - Fish	Not known.
Toxicity - Algae	Not known.
Toxicity - Sediment Compartment	Not classified.
Toxicity - Terrestrial Compartment	Not classified.

12.2 Persistence and Degradation

Not known.

12.3 Bioaccumulative potential

Not known.

12.4 Mobility in soil

Not known.

12.5 Results of PBT and vPvB assessment

Not known.

12.6 Other adverse effects

Not known.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Dispose of contents in accordance with local, state or national legislation. Send to a licensed recycler, reclaimer or incinerator. Dispose at suitable refuse site.

13.2 Additional Information

Disposal should be in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION**14.1 UN number**

UN No. 1294

14.2 UN proper shipping name

UN proper shipping name TOLUENE solution

14.3 Transport hazard class(es)

ADR/RID

ADR/RID Class 3

IMDG

IMDG Class 3

ICAO/IATA

IATA Proper Shipping Name TOLUENE solution

Excepted Quantities E2

Labels

Labels 3

**14.4 Packing group**

Packing group II

14.5 Environmental hazards

Environmental hazards Not classified as a Marine Pollutant.

14.6 Special precautions for user

Special precautions for user Not known.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

No information available

SECTION 15: REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

European Regulations - Authorisations and/or Restrictions On Use

Candidate List of Substances of Very High Concern for Authorisation

Not listed

REACH: ANNEX XIV

Not listed

REACH: Annex XVII

Toluene (108-88-3), lead dibromide (10031-22-8)

Community Rolling Action Plan (CoRAP)

Toluene (108-88-3)

Regulation (EC) N° 850/2004

Not listed

Regulation (EC) N° 1005/2009

Not listed

Regulation (EU) N° 649/2012

Not listed

National regulations

Other – Not known

15.2 Chemical Safety Assessment

A REACH chemical safety assessment has not been carried out.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements:

LEGEND

Acronyms

ADN : European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS : Chemical Abstracts Service

CLP : Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

DNEL : Derived No Effect Level

EC : European Community

EINECS : European Inventory of Existing Commercial Chemical Substances

IATA : International Air Transport Association

IBC : Intermediate Bulk Container

ICAO : International Civil Aviation Organization

IMDG : International Maritime Dangerous Goods

LTEL : Long term exposure limit

PBT : Persistent, Bioaccumulative and Toxic

PNEC : Predicted No Effect Concentration

REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals

RID : Regulations concerning the International Carriage of Dangerous Goods by Rail
STEL : Short term exposure limit
STOT : Specific Target Organ Toxicity
UN : United Nations
vPvB : very Persistent and very Bioaccumulative

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